ESD Laboratory

Material verification
ESD – measurements
Conformity test

Measurement report No. 99008-202201

Order: Brady Corporation 6555 W. Good Hope Rd Milwaukee, WI 53223
Verification objects: - Brady Printer i7100 ESD, verification Object with serial number: 0035502, verification carried out on 14.05.2019 with test report number: 99008-192001
Standard and requirements: - IEC DIN EN 61340-5-1/-5-2 and related
Test set-up: Resistance Measurement: - Electrodes Ø 63,5 mm, conductive rubber, weight 2,5 kg - Two point electrode, conductive rubber - Ring electrode, conductive rubber, weight 2,5kg - Measuring voltage 10V/100 V DC - Measurement time 15 seconds - Insulating base R_{PP} $>10^{12}$ Ohm Electrostatic charge and potential: - Measured with an electrostatic field meter after friction Charge decay: - Measurement of the charge decay from +/-1000 Volt to +/-100 Volt - Insulating base R_{PP} $>10^{12}$ Ohm - Electrodes Ø 63,5 mm, conductive rubber, weight 2,5 kg measured from the housing against the protective earth

Used ESD measurement instruments:	Last calibration:
Electric field meter EFM120 / Sn.: 22350408	04.03.2020
Tera-Ohmmeter TOM 600 / Sn.: 1780805	13.02.2020
KEINATH SEM 3000/ Sn.: 07500135	13.02.2020

Climate Data during the measurement: Humidity: 30,0% r.F. Temperature: 21° C

Measurement report and measurement data:

The Brady Printer i7100 ESD from Brady Corporation was checked for ESD suitability.

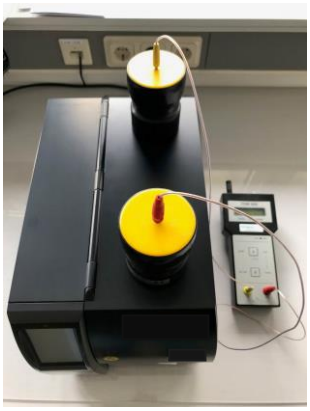
In ESD protected areas and in the near of ESDS there are no critical electrostatic potentials and charges allowed. In addition, occurring charges must be discharged via the printer.

Brady Printer i7100 ESD:

The conductivity of the printer was checked using the following measurement methods:

- Surface resistance R_{PP} with two 2,5 kg electrodes, distance 5 to 20 cm
- Surface resistance R_S with the ring electrode
- Resistance to ground R_G with a 2,5 kg electrode measured against protective earth
- Decay time measurement from 1000V to 100V measured against protective earth

1. Surface resistance measurement/ point to point
   measured with 2,5 kg electrodes on an insulating base,
   measured in a distance of 5cm to 20cm.



   Hinged lid:
   $R_{PP} = 5 \times 10^4 - 1 \times 10^5$ Ohm

   Housing:
   $R_{PP} = 1 \times 10^4 - 5 \times 10^4$ Ohm

2. Surface resistance measurement
   Measured with a ring electrode on an insulating base.

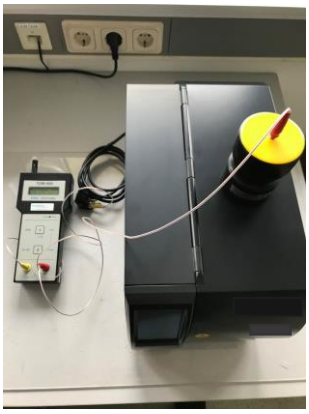
   Hinged lid:
   $R_S = 2 \times 10^5$ Ohm

   Housing:
   $R_S < 1 \times 10^4$ Ohm

3. Resistance to ground measurement
measured with a 2,5kg electrode against protective earth.

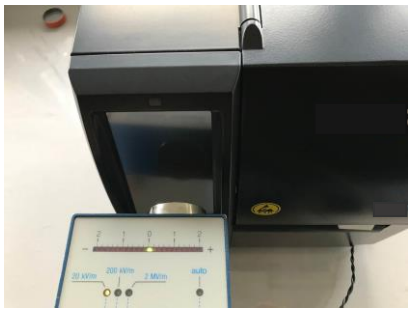
Hinged lid:
R_{GP} = 6 x 10^4 – 7 x 10^4 Ohm

Housing:
R_{GP} = 1 x 10^4 – 3 x 10^4 Ohm



4. Electrostatic charge and potential
measured with an electrostatic field meter.

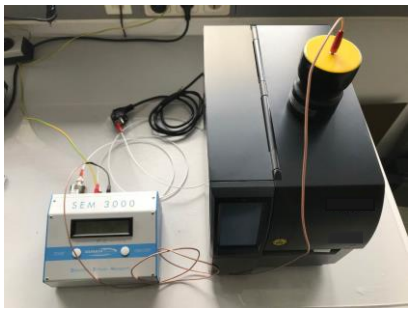
There is no electrostatic charge on the housing parts and on the printers display, even after friction with a polyester cloth.



Only the plastics inside the printer are chargeable, but the existing electrostatic fields are shielded by the housing of the printer.

5. Decay time measurement
   measured with a 2,5kg electrode against protective earth.

   The decay time from +/- 1000V to +/- 100V measured against protective earth amounts <0,1 seconds.



Conclusion:

The checked label printer Brady i7100 ESD is suitable for ESD.
The housing of the printer has a conductive design and is suitably connected to ground via the protective earth.
The checked printer can be used within ESD protected areas and at ESD relevant workplaces.

Note:
The electrostatic charge of the printed labels was not taken into account during the check and must be checked and evaluated by the user depending on the labels used and the intended use.

Terms and abbreviations:
ESD: Electro Static Discharge
EPA: Electro Static Discharge Protected Area
ESDS: Electro Static Discharge sensitive Device
PE: Protection Earth
R_G: resistance measured to PE
R_S: surface resistance (ring electrode)
R_{PP}: surface resistance point to point measurement (2-Point measurement)
R_{GP}: resistance measured to the EBP (to a grounded point)
EBP: Earth Bonding Point

Verification carried out on 13.05.2019 by: Markus Keinath

Gomaringen the 26.05.2020

Markus Keinath

KEINATH Electronic GmbH
consulting & equipment
Robert-Bosch-Straße 34
D-72810 Gomaringen
Phone: +49(0)7072/92893-0
Telefax: +49(0)7072/92893-55
Email: Markus.Keinath@keinath-electronic.de
Web: www.keinath-electronic.de